

REMARKS

Applicants thank the Examiner for the interview of October 10, 2003, in which the rejection under new matter was discussed.

Claims 1-20, 103, and 114-147 are pending in the present application. Claims 1-20 have been withdrawn by the Examiner as being directed to a non-elected invention.

We have added dependent claims 134-147, and note that the Examiner has concluded that claim 131 is free of the prior art. Applicants would appreciate a favorable review of the dependent claims which do not broaden the scope of independent claim 131. Support for the claims can be found throughout the application as filed.

Claims 103, 114, 115, 118, 199, and 131 have been amended to correct minor grammatical errors. Support for the amendments *supra* can be found throughout the specification and claims as filed as discussed further below. Applicants assert that no new matter has been added by amendment. Applicants reserve the right to pursue any cancelled subject matter in a future application. Issues raised in the Office Action are addressed in the order they were raised by the Examiner.

1. Applicants acknowledge acceptance of the RCE.

35 USC § 112

2. Claims 125-127 and 131-133 are rejected under 35 USC 112, first paragraph, as allegedly containing new matter.

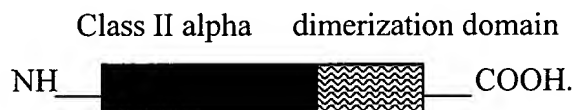
Claims 125-127 and 131-133 were rejected for allegedly lacking support for the recitation of a 'MHC Class II fusion protein comprising a heterodimer, wherein the first polypeptide comprises a fusion of an extracellular domain of an MHC Class II alpha chain and a first coiled-coil dimerization domain; wherein the second polypeptide comprises a fusion of an extracellular domain of an MHC Class II beta chain and a second coiled-coil dimerization domain, wherein said fusion protein further comprises a first immunoglobulin Fc domain positioned at the C-terminus of one of the first and second polypeptide chains.

The Examiner states at page 3 of the Office Action that Applicants arguments of record have not been accepted as providing support for the above-underlined limitation.

As discussed in the interview, the claims set forth monovalent complexes (claims 103, 114-124, and 128-130) and divalent complexes (claims 131-147). These complexes are illustrated in Figures 1 and 2.

Applicants set forth that the instant application does provide explicit support for this claim limitation and specifically bring the Examiner's attention to Figures 1 and 2 and the Brief Description of Figures 1 and 2 in addition to the previously cited sections of the specification.

Claims 125 (monovalent) and 131 (divalent) set forth various parts of the MHC Class II fusion protein wherein there is a first polypeptide chain and a second polypeptide chain, each of which has an amino- (i.e., NH-) and a carboxy- (COOH)-terminus. Further, the claims set forth that the first polypeptide has both the extracellular domain of an MHC Class II alpha chain and a first coiled-coil dimerization domain, as set forth below:



The claims also set forth that the second polypeptide has both a MHC Class II beta chain and a second coiled-coil dimerization domain, as set forth below:



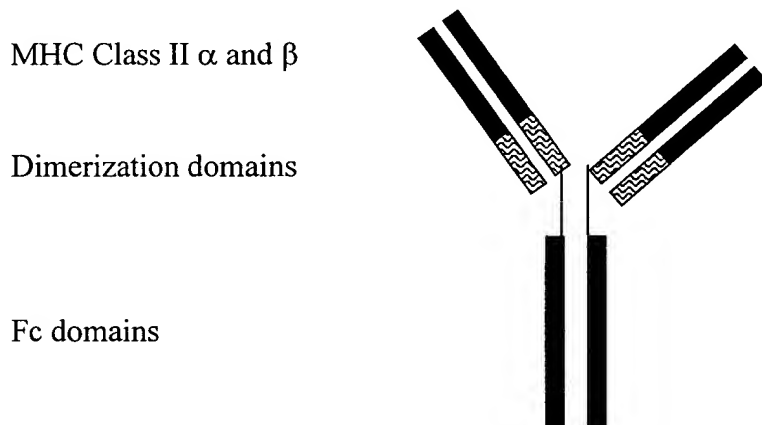
Thus, the C-terminus of each of the first and second polypeptide chains is actually the C-terminal portion of the dimerization domain. The dimerization domains interact to form a dimeric structure as set forth below which is a monovalent embodiment of the invention: (See also Figure 1 of the specification)



Claims 125 and 131 are directed to distinct embodiments, namely a bivalent complex as illustrated in Figure 2 of the specification. Claims 125 and 131 set forth that the fusion protein

further comprises a first-immunoglobulin Fc domain positioned at the C-terminus of one of the first and second polypeptide chains, thus, creating a divalent fusion protein.

As the C-terminus of each of the first and second polypeptide chains is at the C-terminal end of the coiled coil dimerization domains, the final limitation of the claim becomes clear in that the Fc domain is positioned at the C-terminus of one of the first and second polypeptide chains, as is clearly illustrated in Figure 2 of the instant application.



Figures 3, 5, and 6 provide additional illustrations of the multivalent complexes of the present claim embodiment wherein both coiled-coil dimerization domains and Fc domains are present in the same fusion protein.

At the time of filing, Applicants had contemplated a fusion protein having both a dimerization domain and an immunoglobulin domain on the same fusion protein. Support for this claim limitation can be found throughout the specification as filed, for example, at lines 15-19 of page 12, at lines 16-24 and line 28 of page 23; and Figures 2, 3, 5, and 6. As such, Applicants assert that the claims are fully supported by the specification and figures and does not constitute new matter. Further, as claims 134-147 depend on independent claim 131, they also do not contain new matter.

Applicants respectfully request reconsideration and withdrawal of the rejection.

Sequence listing

3. The paper copy and the computer readable form of the Sequence Listing list U.S. Provisional Application 60/024,007 (the “ ‘007 application”) as a priority document. The disclosure was objected to because the Examiner stated that ‘007 provisional “is not related to Applicant’s invention and appears to be cited due to a typographical error”. The Examiner requested submission of the paper and CRF copies from U.S. Provisional Application 60/024,077 instead. The Sequence Listing from the instant application has additional sequences that were not originally filed in the ‘077 provisional. Therefore, Applicants herewith provide a copy of the "Sequence Listing" in paper form for the above-identified patent application as required by 37 C.F.R. §1.821(c) in which the priority claim has been corrected and a copy of the "Sequence Listing" in computer readable form as required by 37 C.F.R. §1.821(e). As required by 37 C.F.R. §1.821(f), Applicant's Agent hereby states that the content of the "Sequence Listing" in paper form and the computer readable form of the "Sequence Listing" are the same and, as required by 37 C.F.R. §1.821(g), also states that the submission includes no new matter.

Applicants respectfully request reconsideration and withdrawal of the objection to the disclosure.

35 USC § 112, second paragraph

4. Claims 114, 115, 118, 119, and 131-133 are rejected under 35 USC § 112, second paragraph, as allegedly being indefinite:

The Examiner states that claims 114, 115, 118, and 119 are indefinite in the recitation of “comprises residues”. Applicants have amended the claims to recite “comprises amino acid residues” as suggested by the Examiner and respectfully request reconsideration and withdrawal of the rejection.

35 U.S.C. § 102(a)

5. Claims 103, 114- 122-123, and 129 are rejected under 35 USC § 102(a) as allegedly being anticipated by Scott et al. (*J. Exp. Med.* 183: 2087-2095 (May 1996)), of record, as evidenced by U.S. Patent 5,837,816 (Ciardelli et al.; the “‘816 Patent”), of record.

Applicants request clarification of the claims included in the rejection as it is unclear whether the Examiner intended the claims to be 114-123; or 114 and 123-123.

The Examiner states at page 6 of the Office Action that in spite of Applicants' statements of record, "Scott's teachings differentiate only between HLA-DR and IA, but not between IA and HLA-DQ . . . "the claims are drawn to all human MHC Class II, including HLA-DQ and not just HLA-DR".

Applicants maintain that Scott et al. do not teach each of the limitations of the claims as currently recited for the reasons of record. Scott only teaches engineering of a soluble murine MHC class II molecule, IA, wherein claim 103 requires a human MHC Class II molecule.

Further, Applicants request clarification of the Examiner's position regarding the evidentiary teachings of the '816 Patent as the Examiner has not addressed this patent in the rejection. Nonetheless, Applicants submit that the '816 Patent cannot serve to cure any deficiencies of Scott et al as the '816 Patent does not teach or suggest human MHC Class II molecules of any species as currently claimed.

Finally, Applicants have submitted a Declaration under 37 C.F.R. § 1.131 by inventor Kai Wucherpennig antedating the Scott et al. reference. Therefore, Scott et al. is not available as prior art under 35 USC § 102(a).

Applicants respectfully request reconsideration and withdrawal of the rejection.

Rejections Under 35 USC § 103(a)

6. Claims 103, 123, and 124 are rejected under 35 USC 103(a) as allegedly being obvious over Scott et al. in view of U.S. Patent No. 5,837,816.

The Examiner's position and Applicants' rebuttal regarding Scott et al. has been discussed *supra*. Further, Applicants' position regarding the '816 Patent has been discussed *supra*. Applicants maintain that the claims were not anticipated by, nor obvious in view of Scott et al. and the '816 Patent either alone, or in combination. Murine MHC and human HLA molecules were clearly not equivalents that could be easily interchanged, and consequently, one of ordinary skill in the art at the time the invention was filed would not have had a reasonable

expectation of success when contemplating the invention as recited. The deficiencies of Scott et al. cannot be cured by the teachings of the '816 Patent.

Applicants have submitted a Declaration under 37 C.F.R. § 1.131 by inventor Kai Wucherpennig antedating the Scott et al. reference. Therefore, Scott et al. is not available as prior art under 35 USC § 102(a).

Applicants respectfully request reconsideration and withdrawal of the rejection.

7. Claims 103 and 130 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Scott et al. in view of US Patent No. 6,015,884 (the "'884 Patent"; Schneck et al.), of record.

Applicant's position regarding Scott et al. has been described *supra* and respectfully request reconsideration and withdrawal of the rejection.

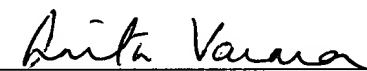
CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the pending claims are in condition for allowance. Early and favorable reconsideration is respectfully solicited. The Examiner may address any questions raised by this submission to the undersigned at 617-951-7000. Should an extension of time be required, Applicants hereby petition for same and request that the extension fee and any other fee required for timely consideration of this submission be charged to **Deposit Account No. 18-1945**.

Respectfully Submitted,

Date: October 29, 2003

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